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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,166	08/19/2003	Jin-han Kim	1293.1867	3597

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EXAMINER	
NGUYEN, LINH THI	

ART UNIT	PAPER NUMBER
2627	

DATE MAILED: 10/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/643,166	KIM ET AL.	
	Examiner	Art Unit	
	Linh T. Nguyen	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32 and 43-58* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32 and 43-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 33-40 and 59-63 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Group II, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 7/13/06. The examiner is in agreement with applicant that the basis for restriction was not proper. However,the following restriction has been appropriately rewritten as a subcombinations useable toether.

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-32 and 43-58, drawn to modulating method and apparatus, classified in class 369, subclass 59.25.

II. Claims 33-40 and 59-63, drawn to demodulating method and apparatus, classified in class 369, subclass 47.22.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination of the modulation method/apparatus has separate utility such as recording apparatus. See MPEP § 806.05(d).

The examiner has required restriction between subcombinations usable together. Where applicant elects a subcombination and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Applicant's election with traverse of Group I in the reply filed on 7/31/06 is acknowledged. The traversal is on the ground(s) that the restriction was base upon subcombinations have separate utility and are usable together in a single combination. This is found persuasive, therefore, a new restriction is written above.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-12 and 17-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heemskerk et al (International Publication number WO03034414 or

US Publication number 20040156291) in view of Kobayashi (International Publication number WO2002075729 or US Publication number 20030179678).

In regards to claims 1 and 17, Heemskerk et al discloses a method and apparatus to modulate address data of a disc type recording medium, the method comprising: generating the address data (Fig. 34, element 73); generating a first modulated signal of the coded address data using a first modulation technique (Fig. 3, MSK modulation); generating a second modulated signal of the coded address data using a second modulating signal (Fig. 3, HMW modulation); and generating a unit wobble signal by synthesizing the first and second modulated signals (Fig. 3). However, Heemskerk et al does not disclose performing error correction coding of the address data and outputting coded address data; receiving the coded address data in a unit of at least two bits.

In the same field of endeavor, Kobayashi discloses a method of performing error correction coding of the address data and outputting coded address data (Fig. 8, element 40); receiving the coded address data in a unit of at least two bits (Fig. 8, table label "Pre-coded"). At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine Heemskerk et al method of modulating an address data to perform an error correction coding as Kobayashi suggested. The motivation for doing so would have been to record/reproduce the address information efficiently and accurately onto the wobble components.

In regards to claims 2 and 18, Heemskerk et al discloses the method and

apparatus, wherein the generation of the first modulated signal comprises generating a signal using the first modulation technique indicating each bit value of the coded address data (Fig. 6) and generating the second modulated signal using the second modulation technique by generating a signal indicating each bit value of the coded address data (Fig. 10 and 11).

In regards to claims 3 and 19, Heemskerk discloses the method and apparatus, wherein the generation of the first modulated signal comprises, using the first modulation technique, generating a predetermined pattern signal if a bit value of the coded address data is equal to a first bit value and not generating the predetermined pattern signal if the bit value of the coded address data is equal to a second bit value (Paragraph [0079]), and generating the second modulated signal using the second modulation technique by generating the signal indicating each bit value of the coded address data (Paragraph [0101]).

In regards to claims 4 and 20, Heemskerk discloses the method and apparatus, wherein the generation of the first modulated signal comprises generating a signal using the first modulation technique to distinguish signals indicating each bit value from one another, and generating the second modulated signal using the second modulation technique by generating signals having different lengths for each at least two-bit values of coded address data (Fig. 10 has different length compared to Fig. 12A).

In regards to claims 5 and 21, Heemskerk discloses the method and apparatus, wherein the generation of the first modulated signal comprises generating at least two pattern signals indicating at least two-bit values of the coded address data using the first modulation technique (Fig. 6), and generating the second modulated signal using the first modulation technique by generating at least two signals used to distinguish signals indicating a bit value of the address data using the second modulation technique, where the coded address data of at least two bits is indicated by disposing at least two pattern signals in predetermined locations and inserting at least two signals to distinguish signals indicating a bit value of the address data between the at least two pattern signals (Paragraph [0079]; describe the first signal, when data is 1 then it is cos(wt) pattern and 0 for –cos(wt) pattern and Paragraph [0100] describe the second signal HMW).

In regards to claims 6 and 22, Heemskerk discloses the method and apparatus, wherein the generation of the unit wobble signal comprises disposing the first and second modulated signals adjacent to each other (Fig. 3).

In regards to claims 7 and 23, Heemskerk discloses the method and apparatus, wherein the generation of the unit wobble signal comprises alternating the first and second modulated signals (Fig. 34).

In regards to claims 8 and 24, Heemskerk et al discloses the method and

apparatus, further comprising: generating signals indicating each bit of the coded address data (Fig. 4A-E).

In regards to claims 9-12 and 25-28, Heemskerk et al discloses the method, further comprising: generating a signal indicating a start of the coded address data using one of the first and second modulation techniques and a third modulation technique (Fig. 34, it would have been obvious to add another type of modulation for better wobble signal).

4. Claims 13-16 and 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heemskerk et al in view of Kobayashi as applied to claim 1 above, and further in view of Lee et al (US Publication number 20050030854).

In regards to claims 13-16 and 29-32, Heemskerk et al discloses two different type of modulation, however, does not disclose the modulation technique of BPSK and FSK.

In the same field of endeavor, Lee et al discloses a modulation technique of binary phase shift keying (BPSK), and frequency shift keying (FSK). At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the two modulations of Heemskerk et al to be BPSK and FSK modulation as suggested by Lee et al. The motivation for doing so would have been to improve the motor speed control (Paragraph [0008]).

5. Claims 43-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heemsherk et al in view of Kobayashi, and further in view of Kondo et al (US Publication number 20050099934).

In regards to claims 43 and 51, Heemskerk et al discloses a process of: generating the address data (Fig. 34, element 73); generating a first modulated signal of the coded address data using a first modulation technique (Fig. 3, MSK modulation); generating a second modulated signal of the coded address data using a second modulating signal (Fig. 3, HMW modulation); and generating a unit wobble signal by synthesizing the first and second modulated signals (Fig. 3). However, Heemskerk et al does not disclose performing error correction coding of the address data and outputting coded address data; receiving the coded address data in a unit of at least two bits.
In the same field of endeavor, Kobayashi discloses a method of performing error correction coding of the address data and outputting coded address data (Fig. 8, element 40); receiving the coded address data in a unit of at least two bits (Fig. 8, table label "Pre-coded").
Heemskerk et al and Kobayashi do not but Kondo et al discloses a computer program to execute recording method (Paragraph [0330], lines 15-20). At the time of the invention it would have been obvious to a person of ordinary skill in the art to combine Heemskerk et al method of modulating an address data to perform an error correction coding as Kobayashi suggested and further contain a computer program to executes the method as suggested by Kondo et al. The motivation for doing so would have been to record/reproduce the address information efficiently and accurately.

In regards to claims 44 and 52, Heemskerk et al discloses the method and apparatus, wherein the generation of the first modulated signal comprises generating a signal using the first modulation technique indicating each bit value of the coded address data (Fig. 6) and generating the second modulated signal using the second modulation technique by generating a signal indicating each bit value of the coded address data (Fig. 10 and 11).
Heemskerk et al and Kobayashi do not but Kondo et al discloses a computer program to execute the method of modulating address data (Paragraph [0330], lines 15-20). The motivation is the same as claim 43 above.

In regards to claims 45 and 53, Heemskerk discloses the method and apparatus, wherein the generation of the first modulated signal comprises, using the first modulation technique, generating a predetermined pattern signal if a bit value of the coded address data is equal to a first bit value and not generating the predetermined pattern signal if the bit value of the coded address data is equal to a second bit value (Paragraph [0079]), and generating the second modulated signal using the second modulation technique by generating the signal indicating each bit value of the coded address data (Paragraph [0101]).
Heemskerk et al and Kobayashi do not but Kondo et al discloses a computer program to execute the method of modulating address data (Paragraph [0330], lines 15-20). The motivation is the same as claim 43 above.

In regards to claims 46 and 54, Heemskerk discloses the method and apparatus, wherein the generation of the first modulated signal comprises generating a signal using the first modulation technique to distinguish signals indicating each bit value from one another, and generating the second modulated signal using the second modulation technique by generating signals having different lengths for each at least two-bit values of coded address data (Fig. 10 has different length compared to Fig. 12A). Heemskerk et al and Kobayashi does not but Kondo et al discloses a computer program to execute the method of modulating address data (Paragraph [0330], lines 15-20). The motivation is the same as claim 43 above.

In regards to claims 47 and 55, Heemskerk discloses the method and apparatus, wherein the generation of the first modulated signal comprises generating at least two pattern signals indicating at least two-bit values of the coded address data using the first modulation technique (Fig. 6), and generating the second modulated signal using the first modulation technique by generating at least two signals used to distinguish signals indicating a bit value of the address data using the second modulation technique, where the coded address data of at least two bits is indicated by disposing at least two pattern signals in predetermined locations and inserting at least two signals to distinguish signals indicating a bit value of the address data between the at least two pattern signals (Paragraph [0079]; describe the first signal, when data is 1 then it is cos(wt) pattern and 0 for –cos(wt) pattern and Paragraph [0100] describe the second signal

HMW).

Heemskerk et al and Kobayashi do not but Kondo et al discloses a computer program to execute the method of modulating address data (Paragraph [0330], lines 15-20). The motivation is the same as claim 43 above.

In regards to claims 48 and 56, Heemskerk discloses the method and apparatus, wherein the generation of the unit wobble signal comprises disposing the first and second modulated signals adjacent to each other (Fig. 3).

Heemskerk et al and Kobayashi do not but Kondo et al discloses a computer program to execute the method of modulating address data (Paragraph [0330], lines 15-20). The motivation is the same as claim 43 above.

In regards to claims 49 and 57, Heemskerk discloses the method and apparatus, wherein the generation of the unit wobble signal comprises alternating the first and second modulated signals (Fig. 34).

Heemskerk et al and Kobayashi do not but Kondo et al discloses a computer program to execute the method of modulating address data (Paragraph [0330], lines 15-20). The motivation is the same as claim 43 above.

In regards to claims 50 and 58, Heemskerk et al discloses the method and apparatus, further comprising: generating signals indicating each bit of the coded address data (Fig. 4A-E).

Heemskerk et al and Kobayashi do not but Kondo et al discloses a computer program to execute the method of modulating address data (Paragraph [0330], lines 15-20). The motivation is the same as claim 43 above.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linh T. Nguyen whose telephone number is 571-272-5513. The examiner can normally be reached on 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, A. Wellington can be reached on 571-272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LN October 15, 2006

ANDREA WELLINGTON
SUPERVISORY PATENT EXAMINER